IN THE CLAIMS:

1. (Original) 1. An apparatus for transmitting information on the physical status of a subject comprising

a carrier for sensors arranged to be worn by the subject for providing electrical signals representative of physical parameters of the subject, and

electronics to receive the electrical signals from the sensors, and to process the signals at the location of the subject,

said sensors including one or more respiration motion sensors comprising

a flexible strip having a first conductive lead connecting to an area of resistive material whose electrical resistance varies as the strip is flexed.

2. (Original) The apparatus of claim 1 wherein the flexible strip is a film laminated to a stiffer base layer comprising an arched portion, wherein the area of resistive material is located on the arched portion.

3. (Original) The apparatus of claim 2 wherein the film strip and base layer are formed so that the portion of the strip containing the resistive material is shaped into an arch.

4. (Original) The apparatus of claim 1 wherein the flexible strip is a film laminated to the stiffer base layer using a flexible adhesive.

5. (Original) The apparatus of claim 1 wherein the area of resistive material is less than half a square centimeter.

6. (Original) The apparatus of claim 1 wherein the area of resistive material has a rectangular shape with an upper surface area less than half a square centimeter.

7. (Original) The apparatus of claim 6 wherein the strip has ends that are substantially flat.

8. (Original) The apparatus of claim 1 wherein the carrier further comprises a central housing for the electronics, two extensions from the central housing carrying external sensors, and a harness.

9. (Original) The apparatus of claim 8 wherein the harness is configured to position the housing approximately over the subject's solar plexus.

10. (Original) The apparatus of claim 9, wherein the harness has an elastic portion and comprises a first strap that passes around the subject's back and a second strap that passes over the left shoulder.

11. (Original) The apparatus of claim 10 wherein the two extensions extend from the sides of the housing and are connected to the first strap of the harness.

12. (Original) The apparatus of claim 8 wherein the straps of the harness have adjustable lengths to allow fitting to different users.

13. (Original) The apparatus of claim 1 comprising electrical contacts on the flexible strip for connection with the electronics and a second conductive lead on the flexible strip joined to the first conductive lead at the end of the sensor opposite the contacts.

14. (Original) The apparatus of claim 13 comprising electrical contacts and having improved electromagnet interference rejection comprising a third conductive lead on the flexible strip, said second and third conductive leads located on opposite sides of the first conductive lead, and the three conductive leads joined at an end opposite the contacts.

15. (Original) The apparatus of claim 1 further comprising a cover sheet overlaying the resistive material.

16. (Original) The apparatus of claim 1 further comprising a cover sheet adhered to the resistive material.

17. (Original) The apparatus of claim 1 comprising a voltage divider circuit having two resistors in which one of the resistors comprises the area of resistive material.

18. (Original) The apparatus of claim 1 comprising a decoupling circuit so that an output signal from the respiration motion sensor is proportional to changes in resistance of the area of resistive material.

19. (Original) The apparatus of claim 2 wherein the resistance of the area of resistive material increases as the arched portion of the strip is flexed convexly.

20. (Original) The apparatus of claim 1 wherein the respiration sensor comprises a second flexible strip having a second area of resistive material, wherein the two flexible strips are back-to-back on a single base layer.

21. (Original) The apparatus of claim 20 wherein the two areas of resistive material are in series and connected between fixed voltages, thus creating a voltage divider.

22. (Original) A carrier for sensors arranged to be worn by the subject for providing electrical signals representative of physical parameters of the subject, said carrier comprising

a central housing,

two flexible extensions containing

sensors including a respiration motion sensor,

a harness, and

electronics to receive and interpret the electrical signals from the sensors, and to process the signals at the location of the subject,

said respiration motion sensor comprising a flex sensor having an arched structure with a radius of curvature and an electrical resistance dependant upon the radius of curvature,

said harness comprising an attachment to the subject that causes the radius of curvature of the arched structure to vary in response to motion of the abdomen of the subject, wherein the electronics wirelessly transmits information representative of the motion of the abdomen of the subject during respiration.

23. (Original) The carrier for sensors of claim 22 comprising one or more respiration sensors, each respiration sensor sewn to a front surface of one of the extensions.

24. (Original) The carrier for sensors of claim 22 wherein the respiration sensor is aligned along the extension.

25. (Original) The carrier for sensors of claim 22, wherein a portion of the extensions under an arched section of a respiration motion sensor is substantially compliant to tensile load so that the tension load when the carrier is worn is mainly across the respiration motion sensor.

26. (Original) The carrier for sensors of claim 22, wherein a cover material is placed over the extensions so arranged not to interfere with flexure of the arch of the respiration motion sensor.

27 – 30. (Cancelled)

31. (Original) A carrier for sensors arranged to be worn by a subject comprising two flexible extensions each containing

a respiration motion sensor comprising

a flexible deformation transducer element that varies in electrical resistance as the chest or abdomen of the subject expands and contracts due to

respiration, wherein each flexible deformation transducer has a preset non-zero curvature and a maximum resistance when no load is applied.

32. (Original) The carrier for sensors of claim 31 further comprising a harness attached to the two flexible extensions such that a tensile load is applied to the flexible deformation transducer element when the subject is taking a breath.

33. (Original) The carrier for sensors of claim 32, wherein the tensile load will tend to reduce the curvature of the flexible deformation transducer, thus decreasing its electrical resistance.

34. (Original) The carrier for sensors of claim 31 wherein the flexible deformation transducer element has a backing or support element that limits the degree of deformation of the flexible element.

35. (Original) The carrier for sensors of claim 31, wherein the change in resistance during breathing is approximately proportional to the load to the flexible deformation transducer during breathing.

36. (Original) A carrier for sensors arranged to be worn by a subject on its abdomen comprising

a flattened body shaped to conform to the abdomen having two projecting arms,

a bending sensor transducer assembly attached between the two projecting arms such that the rotation of either arm relative to the other will produce a change in electrical resistance of the bending sensor,

a flexible pad or backing on one side of the transducer assembly,

a pressure applicator that compresses the assembly against the subject's abdomen, oriented so that the flexible pad or backing is placed flat against the skin.

37. (Original) The carrier for sensors arranged to be worn by a subject on its abdomen of claim 36, wherein the pressure applicator comprises a belt or strap, an external clamp or fixture, or an adhesive pad that attaches to the skin.

38. (Original) The carrier for sensors arranged to be worn by a subject on its abdomen of claim 36, wherein the pressure applicator is configured such that force is applied near proximal and distal ends of each projecting arm with approximately equal force, wherein the flexible pad conforms to the curvature of the skin.

39. (Original) The carrier for sensors arranged to be worn by a subject on its abdomen of claim 38, wherein he pressure applicator is further configured such that the mechanical compliance of the pressing elements is greater at the proximal ends than at the distal ends of the arms.

40. (Original) A carrier for sensors arranged to be worn by a subject on its abdomen wherein the skin and underlying tissue of the abdomen are pressed by two flat extensions that are connected by an arched section on which a resistive sensing element is mounted.

41. (Original) The carrier for sensors arranged to be worn by a subject on its abdomen of claim 40 wherein a rigid or semi-rigid backing is fixed at a short distance from the skin surface and compliant elements fit between the backing and the flat extensions and press the flat extensions against the skin.

42. (Original) The carrier for sensors arranged to be worn by a subject on its abdomen of claim 41 wherein the compliant elements are springy material.

43. (Original) The carrier for sensors arranged to be worn by a subject on its abdomen of claim 42, wherein the compliant elements at the proximal ends of the extension have a different degree of compliance than the compliant elements near distal ends.

44. (Original) The carrier for sensors arranged to be worn by a subject on its abdomen of claim 43, wherein the compliant elements at distal ends may have the greater compliance or to be rigid.

45. (Original) The carrier for sensors arranged to be worn by a subject on its abdomen of claim 40, wherein a pad or separator lies between the flat extensions and the skin.

46 - 96. (Cancelled